Appliance documentation

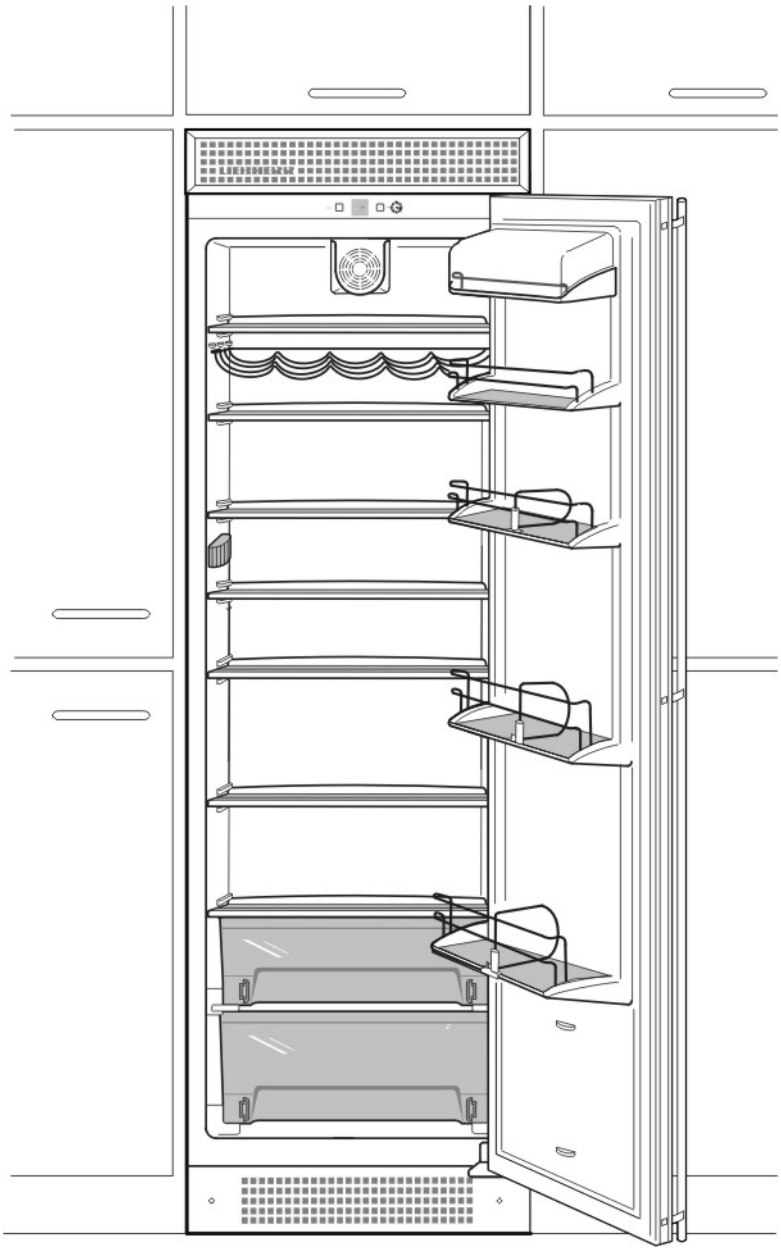
Built-in Refrigerator

24'' width

Version 137

RI 1400 **- with Inverter-**

R 1400 **- with Inverter-**
- in stainless steel-



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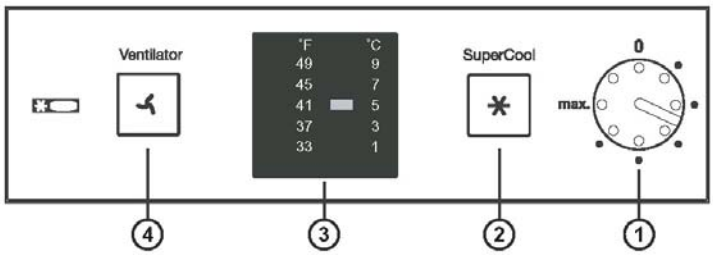
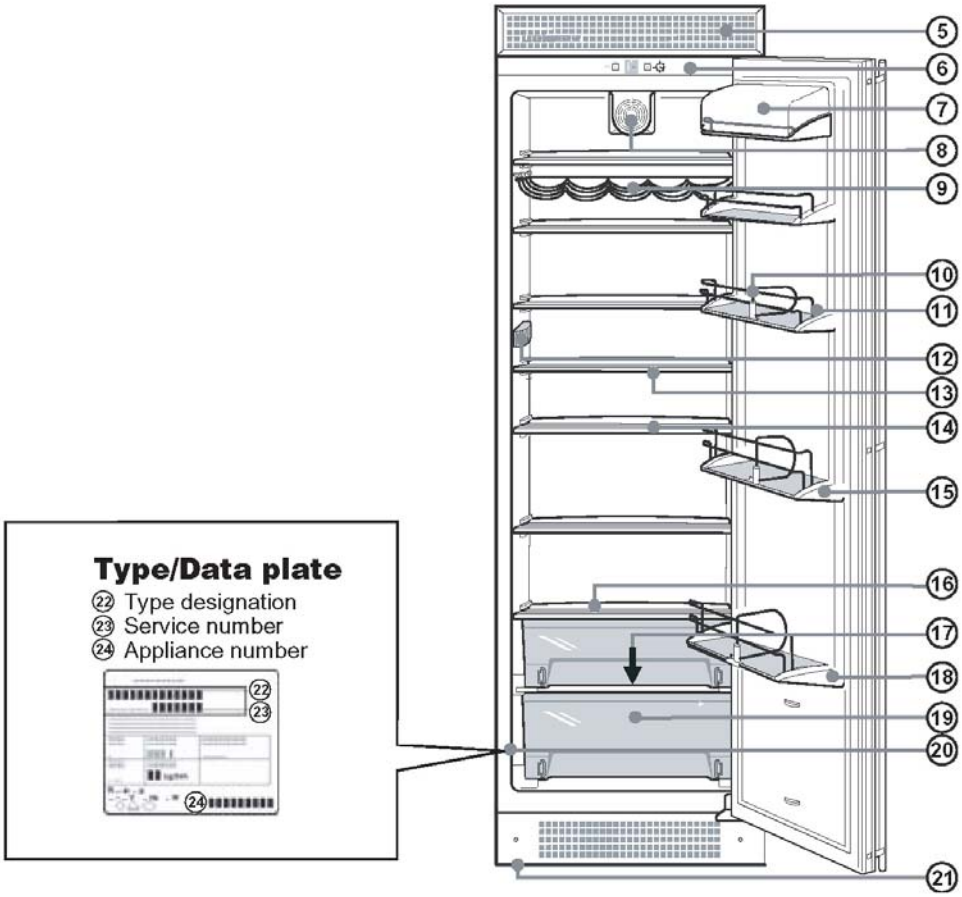
1.0 Extract from the user's manual

1.1 The appliance at a glance





FEATURES

Operating and Control Elements - *Figure 1*

Freezer

(1) On/off and temperature control
Setting 1 = warm
Setting "max." = cold
Recommended temperature setting: 41°F (5°C)

(2) SuperCooling button* for fast cooling of food, lit = function activated

(3) Temperature setting display

(4) Fan ON/OFF button* for re-circulated air cooling - even temperature distribution throughout refrigerator, lit = function activated

Description of Refrigerator

(5) Rear transport grips

(6) Operating and control elements*

(7) Butter and cheese compartment

(8) Fan for re-circulated air cooling*

(9) Bottle shelf*

(10) Adjustable bottle/can holder*

(11) Adjustable-height jar rack

(12) Interior light

(13) Sectioned shelves*

(14) Adjustable* storage shelves

(15) Door rack for bottles and drinks

(16) Coldest area of the refrigerator compartment, suitable for cold-sensitive and highly perishable foods

(17) Defrost drain

(18) Gallon shelf

(19) Vegetable, salad and fruit bins

(20) Type/Data plate

(21) Adjustable-height feet and transport grips at front, transport castors at back

Model Plate

(22) Type designation

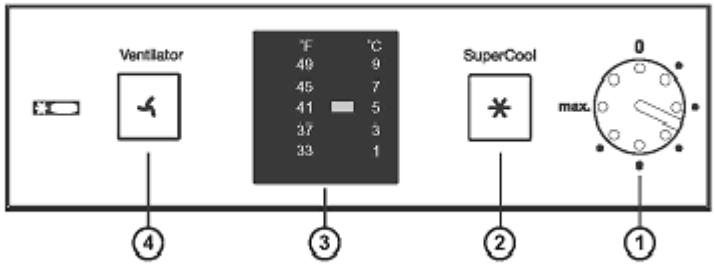
(23) Service number

(24) Appliance number

* Depending on model and options

1.2 Operation and control elements

OPERATION



(From Figure 1)

Turning the Appliance ON and OFF - *Figure 1*

- **To turn ON:** Turn the temperature control ① with a coin so that the slot is pointing to setting 2.
  - A green light on the temperature display will light up and indicate that the appliance is in normal mode.
  - The interior light will switch on.
- **To turn OFF:** Set the temperature control to "0".
  - The temperature display and all buttons will go out.
  - The interior light will go out.

Setting the Temperature

- Turn the temperature control ① with a coin until the desired temperature is indicated in the display. The slot positions mean:
  Setting 1 = **highest temperature,** lowest cooling setting
  Setting "max." = **lowest temperature,** highest cooling setting
- Recommended temperature setting: 41°F (5°C).

Please note that the temperature inside your appliance will depend on where you have put it, the temperature in the room, how often you open the door, and what you put in it. If necessary, re-adjust the temperature control.

Temperature Setting Display

- When the temperature display ③ is illuminated, this indicates that the appliance is running.
- The five blocks in the display each relate to a different temperature range. They indicate the refrigerator temperature setting you have selected.

SuperCooling

The SuperCooling button ② switches the appliance to maximum cooling. This will enable you to achieve temporarily lower refrigerating temperatures.
It is recommended particularly if you wish to cool large quantities of food, drinks, freshly baked cakes or meals rapidly.

- **To turn ON:** Press the SuperCooling button ② briefly so that it lights up.
  - The refrigerator temperature will drop to its lowest value.
- **To turn OFF:** Press the SuperCooling button again so that it goes dark.
  - The SuperCooling function uses slightly more energy. After approximately 6 hours, however, the appliance switches back automatically to normal energy-saving operation.

Fan Switch

for re-circulated air cooling ④:
You can use the fan switch as required to:

- chill large quantities of fresh food fast;
- keep the temperature evenly distributed throughout the entire refrigerator compartment. The air will circulate more intensively, thus keeping all the different areas in the appliance at the same temperature and ensuring that all the food inside is chilled at the same temperature.

- You are recommended to always use the fan switch:
  - in high room temperatures (approximately 95°F / 35°C or higher) or
  - if the air humidity is high, e.g. during the summer.
- **To turn ON:** Press the fan button ④ briefly so it lights up.
- **To turn OFF:** Press the fan button again so it goes dark.
  - To save energy, the fan will turn off automatically when the door is open.

2.0 Functions at a glance (X = available, O = not available)

Control:	**X**	electronics
	O	thermostat
Temperature display:	**O**	analogue
	X	digital
Fan:	**X**	Refrigerator
Defrosting:	**O**	manual
	X	automatic
Lighting:	**X**	Refrigerator
SuperCool:	**X**	automatic. (33°F for 6h)
Service menu:	**X**	start by button combination
	O	start by test jack
Cooling technology:	**X**	1 VCC compressors

3.0 Description of the appliance (in brief)

The R(I) 1400 is a built-in refrigerator with switch-controlled ventilation and SuperCool functions. The appliance is controlled via an evaporator sensor and is equipped with a VCC compressor.

4.0 Control and functional parts

4.1 Refrigerator

Electronics:	Magnetec series no. 3 electronics, control panel PCB and power PCB. The microcontroller is situated on the power PCB.
Display range:	33°F to 49°F (1°C to 9°C).
Setting range:	+33°F to +49°F (+1°C to +9°C).
Interior light:	Left inner side in the refrigerator. Switches off after door is open for 15 mins.
Air sensor:	**Function:** - Switches the compressor on/off. **Position:** - In evaporator pocket on rear side of evaporator. **Sensor error:** - Display F 2, audible warning 3 warning tones. **Emergency mode:** - Compressor and fan switch over to a pre-programmed switch mode: 10 mins. ON, 40 mins. OFF.
SuperCool:	A higher cooling rate is achieved. The SuperCool function is active for a duration of 6 hours, the appliance adjusts to a temperature of +33°F (+1°C).
Fan	Top centre of refrigerator compartment. Can be switched on and off in the control panel. With activated ventilation function : • Ventilator is in operation as soon as the compressor is on. • Switches off when door is opened (Reed switch).
Defrosting:	**- in normal mode:** - automatically during the standstill phase of the compressor **- after continuous compressor operation:** - after continuous compressor operation of 4 hours. The minimum downtime after continuous operation is 40 mins.
Compressor:	VCC-Compressor **Continuous operation limit:** 4 hrs. -> After continuous operation of the compressor of 4 hours, a minimum compressor downtime of 40 minutes follows. **Reconnection delay:** 8 mins.

5.0 Cooling circuit

5.1 Refrigerator compartment

Evaporator:	Freely suspended rear wall evaporator. Evaporator sensor can be replaced separately.
Injection point / flow sequence:	Injection of coolant in refrigerator compartment evaporator top left / Condenser -> frame heating -> evaporator
Compressor:	VCC compressor.
Coolant:	R134a

6.0 Special features

6.1 VCC compressor

The drop-in electronic inverter automatically sets the speed of the VCC compressor (variable capacity compressor). No frequency signal is required here.

- Compressor with 4 different speed steps (1600 / 1900 / 3000 / 3600 rpm).
- The electronic inverter is directly attached to the compressor. The electronic inverter controls the compressor with a pulse-wide modulated square wave voltage.
- To set the speed, the electronic inverter evaluates the operation time of the compressor.

Attention; danger of destruction

The compressor may only be operated via the inverter

6.1.1 Speed control VCC compressor

The electronic inverter receives the ON-OFF signal via the power PCB. The speed of the compressor is automatically calculated by the electronic inverter.

The speed is calculated based on the operating time of the compressor.

- **On start-up, the compressor operates at a speed of 3000 rpm.**
- **Speed increase during compressor operation by 1 step if the operating time is longer than 70 minutes.**
- **No change in speed with next start-up if the operating time was 40 to 70 minutes.**
- **Speed reduction with next start-up if the operating time was shorter than 40 minutes.**

7.0 Assembly instructions

7.1 Refrigerator compartment fan

The fan is inserted in the plastic housing with rubber buffers. The supply cable is fitted with a detachable plug.

The fan housing is fixed to the ceiling of the appliance with two screws (see Fig. 7.1.1).

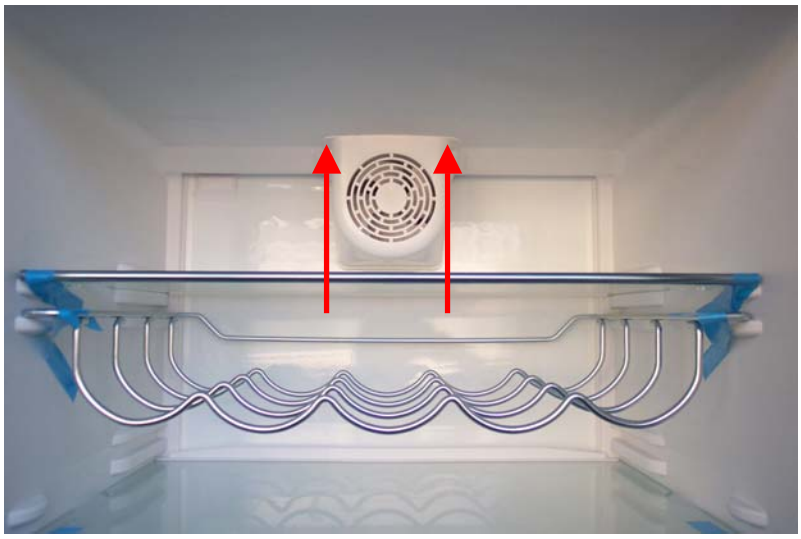


Fig. 7.1.1: Position of screws

(1) Plug contact fan supply cable

(2) Remove air guide plate upwards

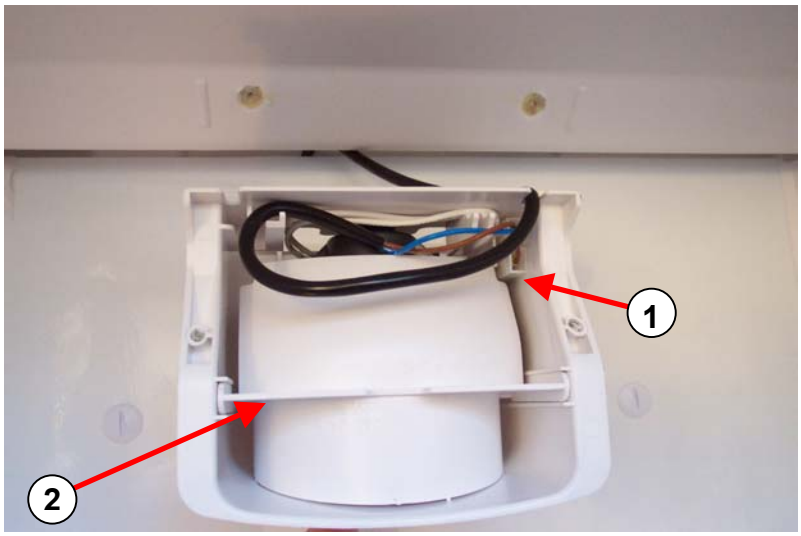


Fig. 7.1.2: View inside the fan housing

7.2 Refrigerator compartment evaporator sensor

The evaporator sensor is inserted in a sensor pocket on the rear side of the evaporator.

1. Remove glass shelves.
2. Disassemble fan, **see 7.1**.
3. Undo evaporator fixing screws (1).

Fig. 7.2.1: Disassembly of rear wall evaporator

Turn out rear wall evaporator on the right-hand side (the suction pipe bushing is situated on the left).

(1) Refrigerator compartment evaporator sensor.

(2) Sensor pocket on the back of the evaporator.

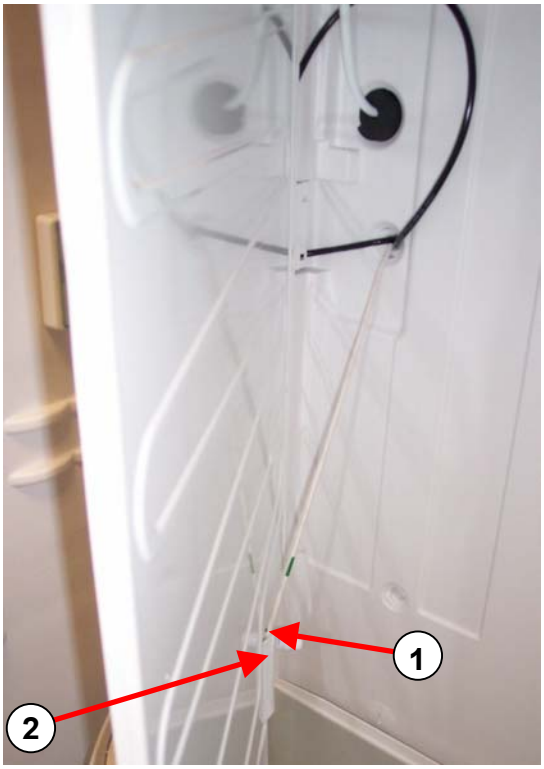
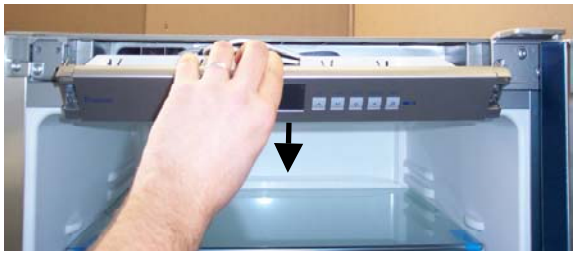


Fig. 7.2.2: Position of evaporator sensor

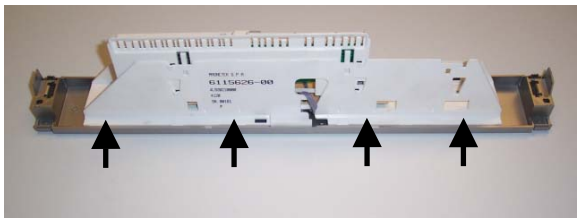
7.3 Electronics disassembly

Remove covers and undo Torx screws.

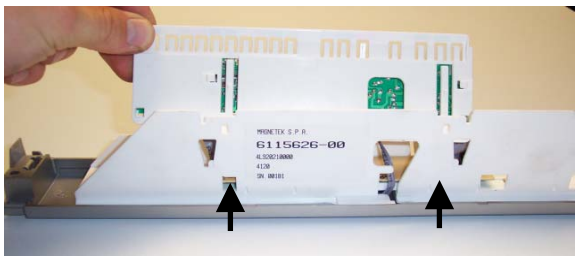
Carefully remove the electronics housing and disconnect the wire connectors.



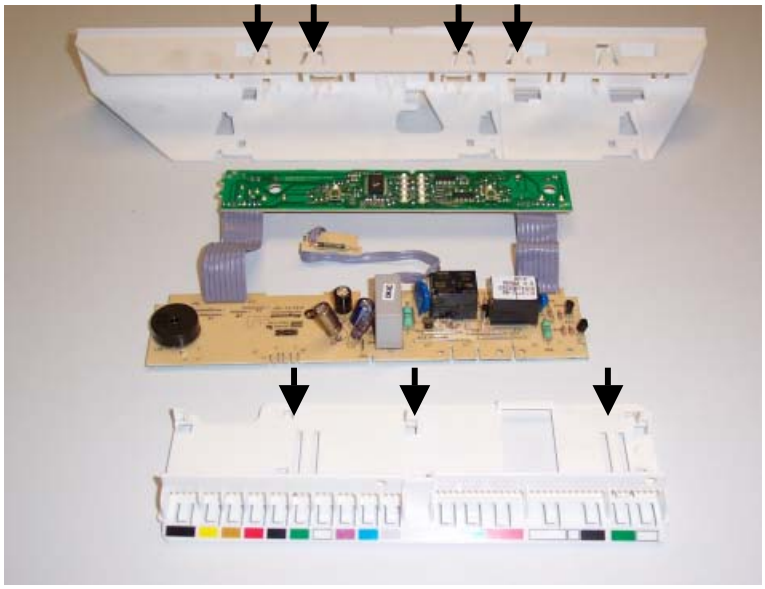
Release the lips and remove the board bracket from the front panel.



Release the lips and remove the power board bracket.



Carefully release the lips (arrows).



8.0 Technical specifications

8.1 Refrigerator

Lighting:
Output: 25 Watts
Voltage: 115 Volts (AC)
Fitting: E14

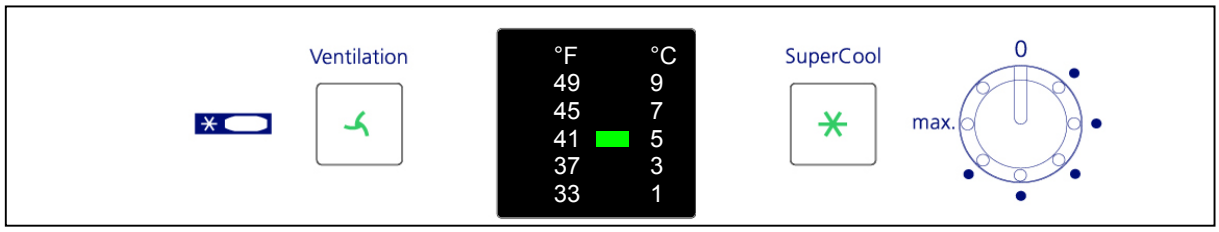
Fan:
Output: 6 Watts
Voltage: 100 Volts (AC)
Resistance: 131 Ohms
Revolution: 1700 rpm

Sensor values: evaporator sensors

Temperature [°C]	Temperature [°F]	Resistance value [kOhm]
+35	+95	3,1
+30	+86	3,8
+25	+77	4,7
+20	+68	5,9
+15	+59	7,3
+10	+50	9,3
+5	+41	11,9
0	+32	15,3
-5	+23	19,8
-10	+14	25,9
-15	+5	40,4
-20	-4	45,3
-25	-13	60,8
-30	-22	82,3
-35	-31	82,3

9.0 Service menu

The service menu may only be used by after-sales service technicians.



9.1 Demo mode "d1" or "d0"

- Set control knob to 0. Press SuperCool (SC) for three seconds and turn the control knob to the right.
- SC flashes, you are in the service menu.
- Turn control knob until the 45°F-LED (7°C) is lit.
- Press SC, demo mode is activated, the service menu is ended.

Attention: The demo mode can only be deactivated by switching off at the mains.

9.2 Service Mode

- Set control knob to 0. Press SC for three seconds and turn the control knob to the right.
- SC flashes, you are in the service menu.
- Turn control knob until the 41°F-LED (5°C) is lit.
- Press SC, SC flashes. 49°F-LED (9°C) is lit.
  The appliance is in service mode.
- Close and open refrigerator compartment door. 49° and 45°F-LED (9° and 7°C) are lit.
  The appliance is **no longer** in service mode.
- Set control knob to 0. 49° and 45°F-LED (9° and 7°C) go out.
  41°, 37° and 33°F-LED (5°, 3° and 1°C) are lit.
- Turn control knob to the right. 41°, 37° and 33°F-LED (5°, 3° and 1°C) go out.
  SC-LED and ventilation-LED are lit.
- Press SC, SC-LED and ventilation-LED go out.
  49° and 45°F-LED (9° and 7°C) are lit.
- Press ventilation; 49° and 45°F-LED (9° and 7°C) go out.
  41°, 37° and 33°F-LED (5°, 3° and 1°C) are lit.
- Interior light switches off after 3 secs. (all consumers are off),
  49°F-LED (9°C) is lit, SC-LED flashes.
  Press SC.
- 45°F-LED (7°C) is lit and SC flashes. The compressor switches on
  (Attention: the coil protection switch may be triggered).
  Press SC.
- 33°F-LED (1°C) is lit and SC flashes. Compressor switches off. Interior light switches on.
  Press SC.
- 41°F-LED (5°C) is lit and SC flashes. Interior light switches off. Fan switches on.
- Set control knob to 0, the service menu is ended.

10.0 Error code table

Error code	Defective component	Emergency mode
SC- and 37°F (3°C)-LED flash + alarm tone (3 signal tones)	Refrigerator compartment evaporator sensor	Compressor 10 mins. on and 40 mins. off